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	ζ.,	10	3, 1	10. 2	21 (1	999	) (p	ages	4318-4322)						
51	A.T	P., 37		oul	et a	., <u>R</u> e	eve	rsible	Sidewall Fund	ctionalization of Buckyti	ubes, Che	mical Physic	s Letters	, 3 Septe	ember 1999, pp. 367-
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71	A.T	Fu	ruka	awa	et a	II., <u>L</u>	Inite	d Sta	ates Patent Ap	plic	ation Publication No	. US 200	5/O179029,	Publication	n Date:	August 18, 2005
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25	D.T	H.Cui, Chemi	et al, "( cal Phy	Growth b	ehaviders 37	or of carbon n 4 (2003) 222	anotubes on multilayer	red metal	catalyst film	on chemi	ical vapo	or deposition."
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55	E.S	Furu	kawa e	et al.,	United	States Paten	t Application N	No. US2005/C	130341,	Publication I	Date: Jur	ne 16, 20	05
55	E.T	Roes	sner et	al., <u>U</u>	Inited S	States Publish	ed Application	No. 2003/O1	132461 A	1. Publicatio	n Date: 7	7/17/2003	3
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55	F.S		ycke, e t 16, 20		rbon l	Nanotube In	nter- and Intra m	nolecular I	Logic Gat	es," Nano L	etters, xx	xx Vol.0,	No 0 A-D (Received
55	F.T	Phillip	G. Coll	ins, et a	l., "Na	notubes for	Electronics," S	cientific A	merican,	pp. 62-69, C	)ecember	<u> 2000</u>	
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	I.T	Furuka	awa et a	al., <u>Unite</u>	d Stat	tes Patent App	olication Publica	ation No	. US 200	<u>5/0167655,</u>	Publication	on Date:	August 4, 2005
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Won Bong Choi, et al, "Ultrahigh density nanotransistors by using selelctively grown vertical carbon nanotubes", Applied Physics Letters, Volume 79, Number 22, 26 Novenmber 2001 Bo Zheng, et al, "Efficient CVD Growth of Single-Walled Carbon Nanotubes on Surfaces Using Carbon Monoxide J.T Precusor\*, Nano Letters, xxxx Vol.0, No 0 A-D. American Chemical Society revised June 26, 2002

**EXAMINER** 

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EXAMINER: Initial if citation considered, whether or not in conformance. Draw line through citation only if not in conformance and not considered. Include a copy of this form with next communication to applicant.

Sheet 11 (K) of 15 SERIAL NO. ATTY. DOCKET NO. U.S. DEPARTMENT OF COMMERCE SUBSTITUTE FORM PTO-1449 PATENT AND TRADEMARK OFFICE 10/711,764 **IBW319** (MODIFIED) **APPLICANT** INFORMATION DISCLOSURE STATEMENT BY APPLICANT Toshiharu Furukawa et al. **GROUP** FILING DATE (Use several sheets if necessary) 2823 October 4, 2004 (37 CFR 1.98(b)) U.S. PATENT DOCUMENTS FILING DATE ISSUE EXAMINER IF APPROPRIATE CLASS SUBCLASS DATE PATENTEE PATENT NUMBER INITIAL K.A K.B K.C K.D K.E K.F K.G K.H K.I K.J K.K FOREIGN PATENTS OR PUBLISHED FOREIGN PATENT APPLICATIONS **TRANSLATION COUNTRY OR PUBLICATION DOCUMENT** (YES/NO) PATENT OFFICE SUBCLASS CLASS DATE NUMBER K.L K.M K.N K.O K.P K.Q OTHER DOCUMENTS (Including Author, Title, Date, Place of Publication) Gorman, "Nanoscale Networks: Superlong nanotubes can form a grid". Science News Online, May 3, 2003; Vol 163, No 18 K.R "Tiny nanotubes set new record", 7 August 2003. Nanotechweb.org K.S

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Electrical Breakdown,\*

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"IBM Scientists Develop Carbon Nanotube Transistor Technology," IBM.com News - news report concerning work published

in Science, Vol. 292, Issue 5517, April 27, 2001 entitled "Engineering Carbon Nanotubes and Nanotube Circuits Using

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55	L.T	Choi	et	al., <u>U</u>	nited	l Stat	es P	ublished Pate	nt Application No. L	S 20	003/0230	0760, Publica	ation Date	e: 12/18/	2003
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75	M.R	V.N. Popov, <u>Carbon Nanotubes: Properties and Application</u> , Materials Science and Engineering, R. Vol. R43, No. 3, pp. 61-102 (1/15/2004) (Summary only)														
55	M.S	Furukawa et al., United States Patent Application Publication No. US 2005/O167740, Publication Date: August 4, 2005														
31	M.T	Dubin et al., United States Patent Application Publication No. US 2005/O167755, Publication Date: August 4, 2005														
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Appenzeller et al., United States Patent Application No. 2003/O178617, Publication Date: 9/25/2003

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